

1. A method for preparing an array of gel pads, the method comprising:  
providing a first gel layer on a substrate;  
selectively removing portions of the first gel layer to create voids in the first gel layer;  
5 providing a second gel in the voids; and  
removing the first gel layer, such that an array of gel pads is provided.
2. The method of claim 1, wherein the first gel layer comprises an intelligent gel.
- 10 3. A gel pad comprising a living cell.
4. An array of the gel pads of claim 3.
5. A gel pad comprising a first gel layer and a second gel layer adjacent to and in contact  
15 with said first gel layer.
6. The gel pad of claim 5, wherein at least one of the first gel layer and the second gel layer  
comprises an intelligent gel.
- 20 7. A method for preparing a gel pad array, the method comprising:  
preparing gel pads on a first substrate; and  
transferring the gel pads from the first substrate to a second substrate in an array format,  
thereby preparing a gel pad array.
- 25 8. The method of claim 7, wherein the first substrate is coated with an intelligent gel.
9. A flexible tape having a gel pad array disposed on a surface of the tape.
10. The flexible tape of claim 9, wherein the tape comprises means for preventing  
30 compression of gel pads when the tape is wound on a reel.
11. The flexible tape of claim 10, wherein the means for preventing compression comprises  
at least one ridge which extends along a length of the tape.

12. A carrier for a tape having gel pad arrays thereon, the carrier comprising a housing, at least one tape reel for winding the tape, and visible or machine-readable indicia for storing information about the tape stored in the carrier.
- 5 13. A method of providing a gel having a substance disposed within the gel comprising:  
    (1) providing a substrate on which is disposed a gel, and wherein said gel is an intelligent gel, capable of existing in an expanded and a contracted state;  
    (2) contacting the intelligent gel, while in the expanded state, with the substance, e.g., a solute in a solution, and allowing the substance to enter the gel;  
10     (3) causing the expanded intelligent gel to contract, wherein upon contraction molecules of the substance remain in the gel, thereby forming a gel having a substance disposed within the gel.
14. A method of detecting analyte, comprising:  
15     (1) providing a gel having a first layer which includes a molecule for detecting the analyte and a second layer having a cell, which, e.g., releases, produces, inactivates, modifies, or otherwise affects the level of the analyte;  
    (2) detecting the analyte.
- 20 15. A method of a polynucleotide sequence in a sample comprising:  
    providing a sample which includes a polynucleotide sequence to be analyzed;  
    providing an array of a plurality of capture probes, wherein each of the capture probes is positionally distinguishable from other capture probes of the plurality on the array, and wherein each positionally distinguishable capture probe includes a unique (i.e., not repeated in another  
25 capture probe) region complementary to the plurality of selector probes and wherein the array is a gel pad array described herein (each of the plurality of probes can be in its own gel pad);  
    hybridizing the selected nucleic acid molecule with the array of capture probes, thereby detecting or identifying a selected nucleic acid molecule which bound to the polynucleotide sequence and thereby analyzing the polynucleotide sequence.  
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16. A method of performing a reaction comprising:  
    providing a first reactant, disposed within a first intelligent gel which changes porosity in response to an environmental parameter having a first value,;  
35     providing a second reactant, disposed within a second intelligent gel which changes porosity in response to an environmental parameter having a second value;

exposing the intelligent gels to the parameter at a first value, thereby causing a change in porosity of the first gel, and thereby modulating exposure of the first reactant to a target,;

5 exposing the intelligent gels to the parameter at a second value, thereby causing a change in porosity of the second gel (and preferably not the first gel), and thereby modulating exposure of the second reactant to a target,  
thereby performing a reaction.